



Artwork by my friend
KATIE
First Grade

The new James A Caywood Elementary School

A report on my new school
by Johnny C. • Grade 5

Introduction

My report is about my new school. It will be called the James A. Caywood Elementary School...just like my old school. Even though it will have the same name, it will be very different. The architects and engineers have added all kinds of neat things to make it modern. It is going to be the best school ever! My report will tell you all about it.

My mom let me call the architect for my school, Andrew Piaskowy, with Piaskowy + Cooper^{PSC}, and he told me a lot about High Performance Buildings. The Kenton County School District and the Kentucky Department of Education think this is the future for school construction. He said my school is based on daylighting the classrooms, media center, cafeteria, and main corridor. The thing about daylighting is that not only is it proven to save energy by reducing the need for electrical lighting and the heating and cooling loads, but also that it might help me earn better grades. A 1999 study conducted by Heschong Mahone Group shows that students with the best daylighting in their classrooms progressed 20% faster on math tests and 26% faster on reading tests in one year than those with worse daylighting. Energy savings by daylighting will save the schools and the taxpayers money and help me learn better.

I have learned a lot while writing this report. When I grow up I hope to be a teacher or maybe even an architect who designs schools.



A+
You did a
great job on
your report.

Johnny C.
~~XXXXXXXXXXXXXXXXXXXX~~
Grade 5

History



Very Nice! The next time you might want to try using a glue stick instead of scotch tape

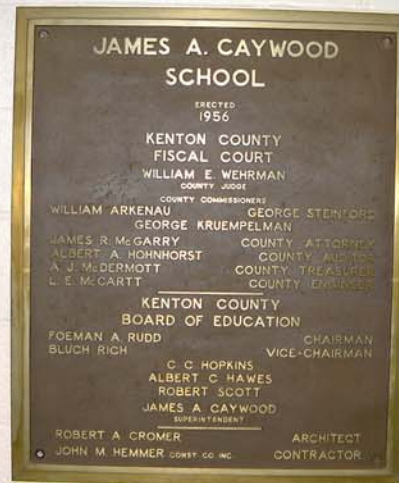
This is my old school, James A. Caywood elementary school. It is located at 25 Summit Drive in Edgewood, KY. It was built in 1956. That was before I was born. My mom and dad said it was before they were born. That is very old!



It was named after Mr. James A. Caywood. He was the superintendent of the Kenton County Schools and also the first principal of Dixie Heights High School. I can see the high school from my classroom window.



A picture of Mr. Caywood
that I found in the library



A picture of the dedication plaque
I found in the lobby.



A picture of our spanish classroom



A picture of our first floor corridor

Kentucky Post
September 24, 2001

Crestview Hills marks half-century of growth

Pieces of the Past
by Jim Reis

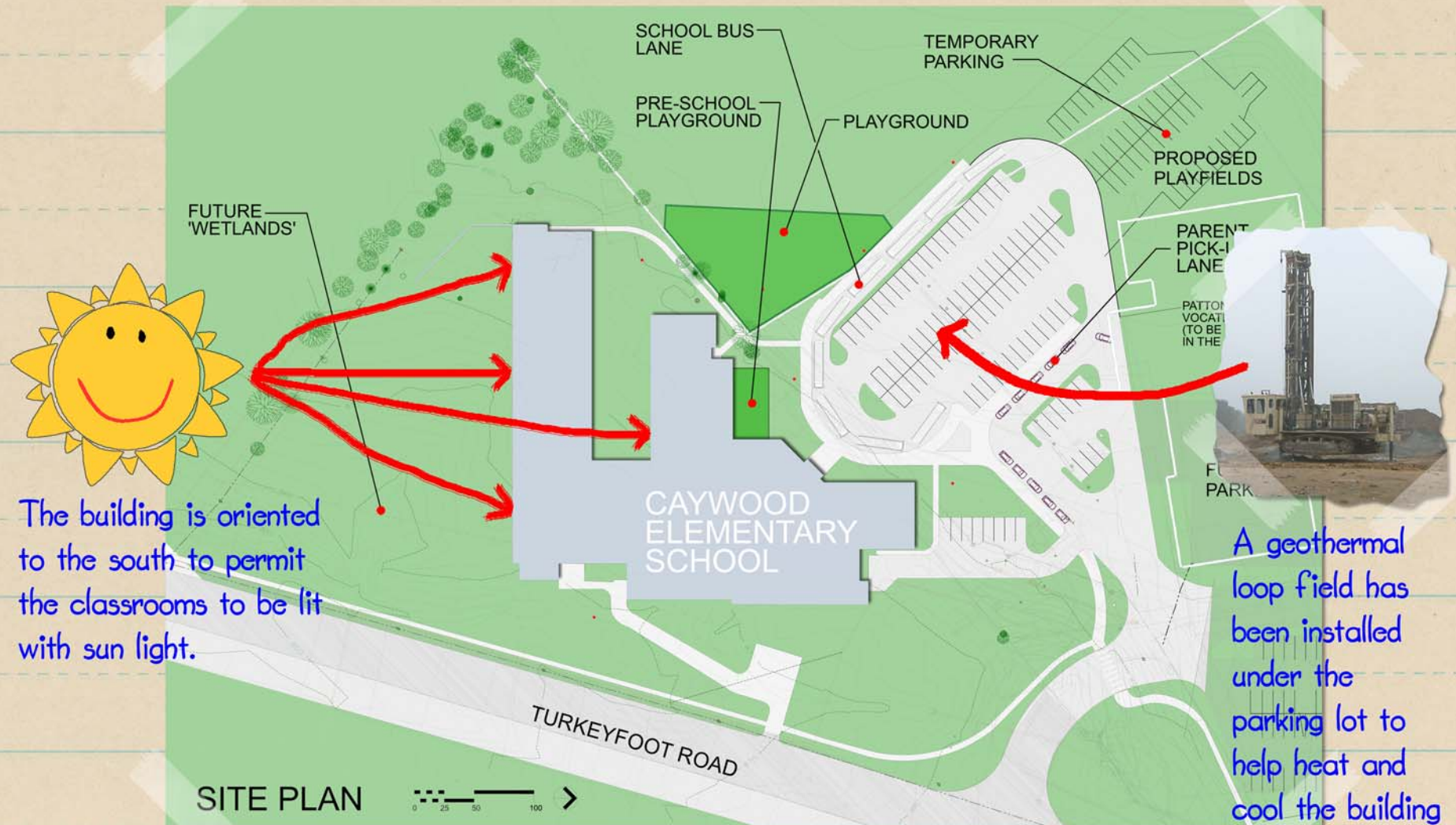
Caywood Elementary School:
Although now considered part
of Edgewood, Caywood School
was considered to be in the
Crestview Hills area when it
opened in March 1957.

Dedication ceremonies were
held on March 10 with some
500 people attending the
ceremonies. The new school
was named for Kenton County
School Superintendent James
A. Caywood. Caywood at that
point had been in education
for 33 years and been
superintendent for 19 years.

The new school was built to
house 450 students and had
15 classrooms, an auditorium,
cafeteria, offices and
service rooms. The main
speaker at the ceremonies
was Dr. Robert R. Martin,
state Superintendent of
Public Instruction.

Geography

The new James A. Caywood Elementary School is located on Turkeyfoot Road right next to the James D. Patton Vocational School and Turkey Foot Middle School.





The contractor had to move a bunch of dirt around to make a place to build my new school.

This is where the gym will be.



These are some of the holes drilled for the geothermal field. It looks like they have a mole problem to me.

You can start to see the walls for the lower level of the two-story classroom wing. I think my classroom is here.



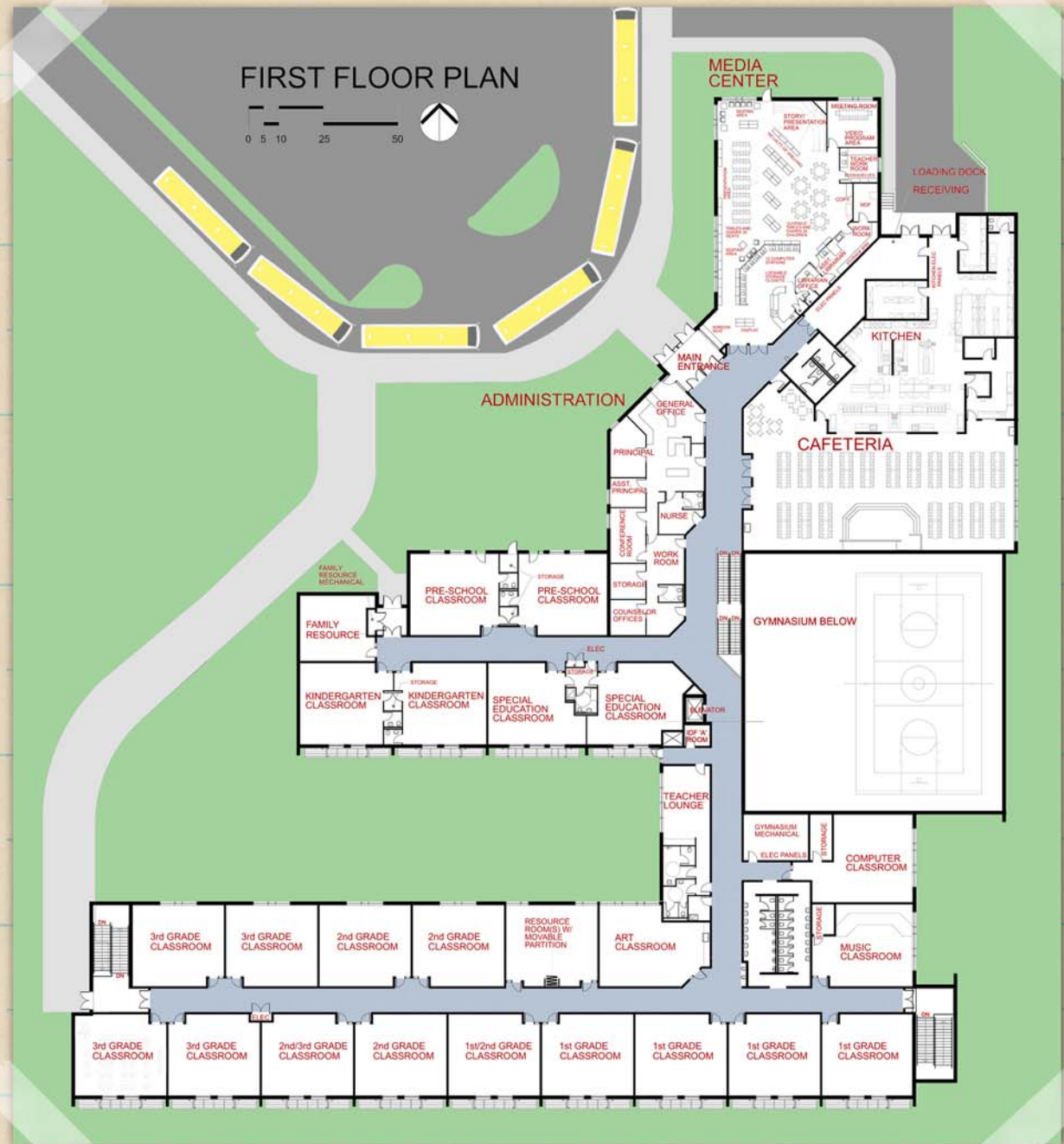
This is where the cafeteria and media center will be.



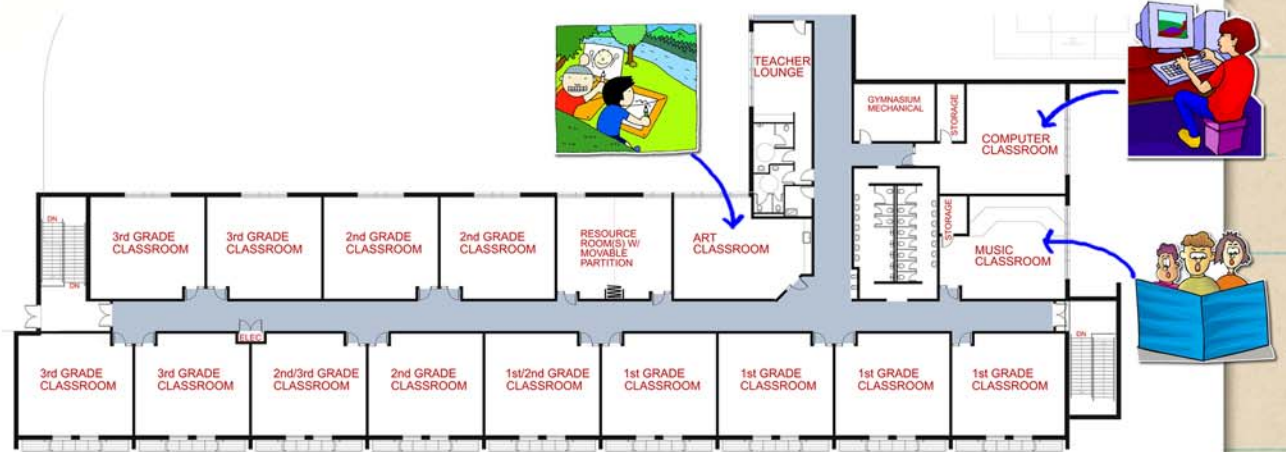
The contractor, Messer Construction Co. was very nice and gave me these pictures of the building being built. They were taken from an airplane.

Art

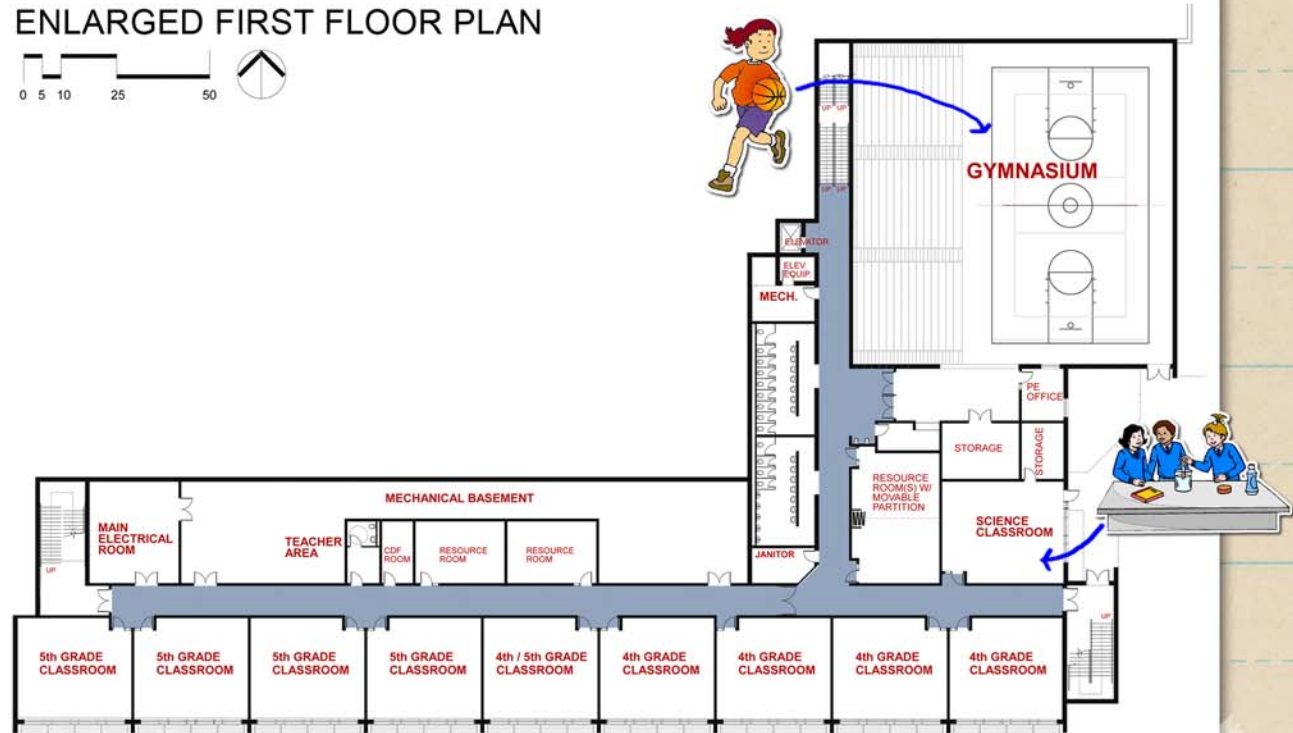
This is an overall floor plan of the first floor. Classrooms are located on the first floor and the lower level along hallways branching off the main entrance hallway. I'm not sure which classroom I will be in, but I do know that it's on the lower level along with the fourth grade. That will be cool since that is also where the science classroom is located. The architect told me that there will be some windows into the equipment room so I can see and learn how the building works and that the science classroom is located to make it easy to go outside to do experiments. There is space for a 'wetlands' area in the future not far from the science classroom so we can learn more about our environment and resources. I also like being close to the gym since I like sports. The gym has enough bleachers to have the whole school together for an assembly...about 600 children.



My new school will have separate classrooms for music, art, and computers on the same floor as the first, second, and third grades. All of the classrooms will have indirect lighting to reduce glare and contrast between light and dark areas which is really important around computers.



ENLARGED FIRST FLOOR PLAN



ENLARGED LOWER LEVEL PLAN

The land on Turkeyfoot Road where my new school is being built is not flat, but that just makes the school look like it is part of the hills. The colors of the brick bands look like the layers of the earth. Even the high lower level gym ceiling will be the same height as the first floor roof.



SOUTH ELEVATION



EAST ELEVATION

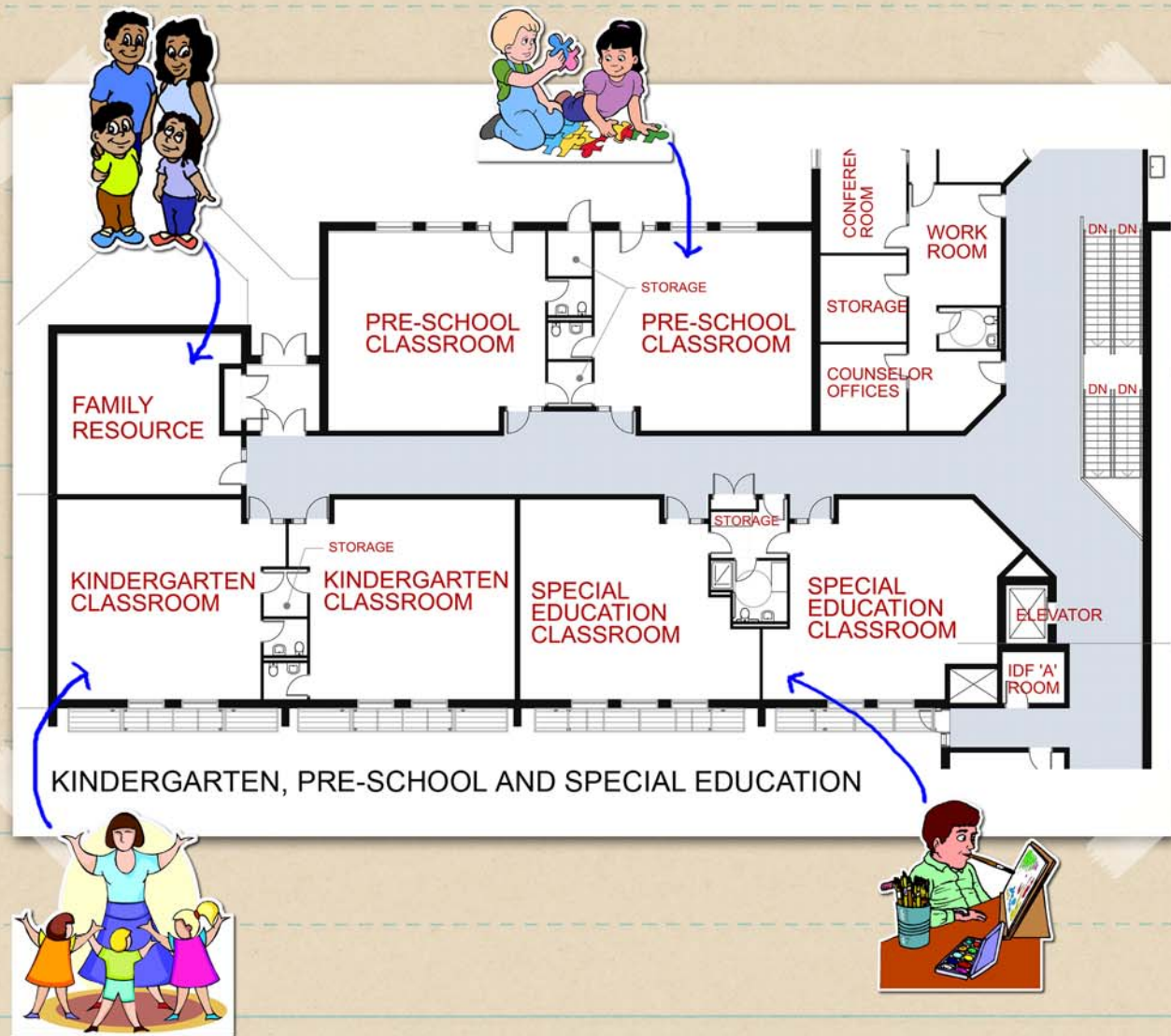


NORTH ELEVATION



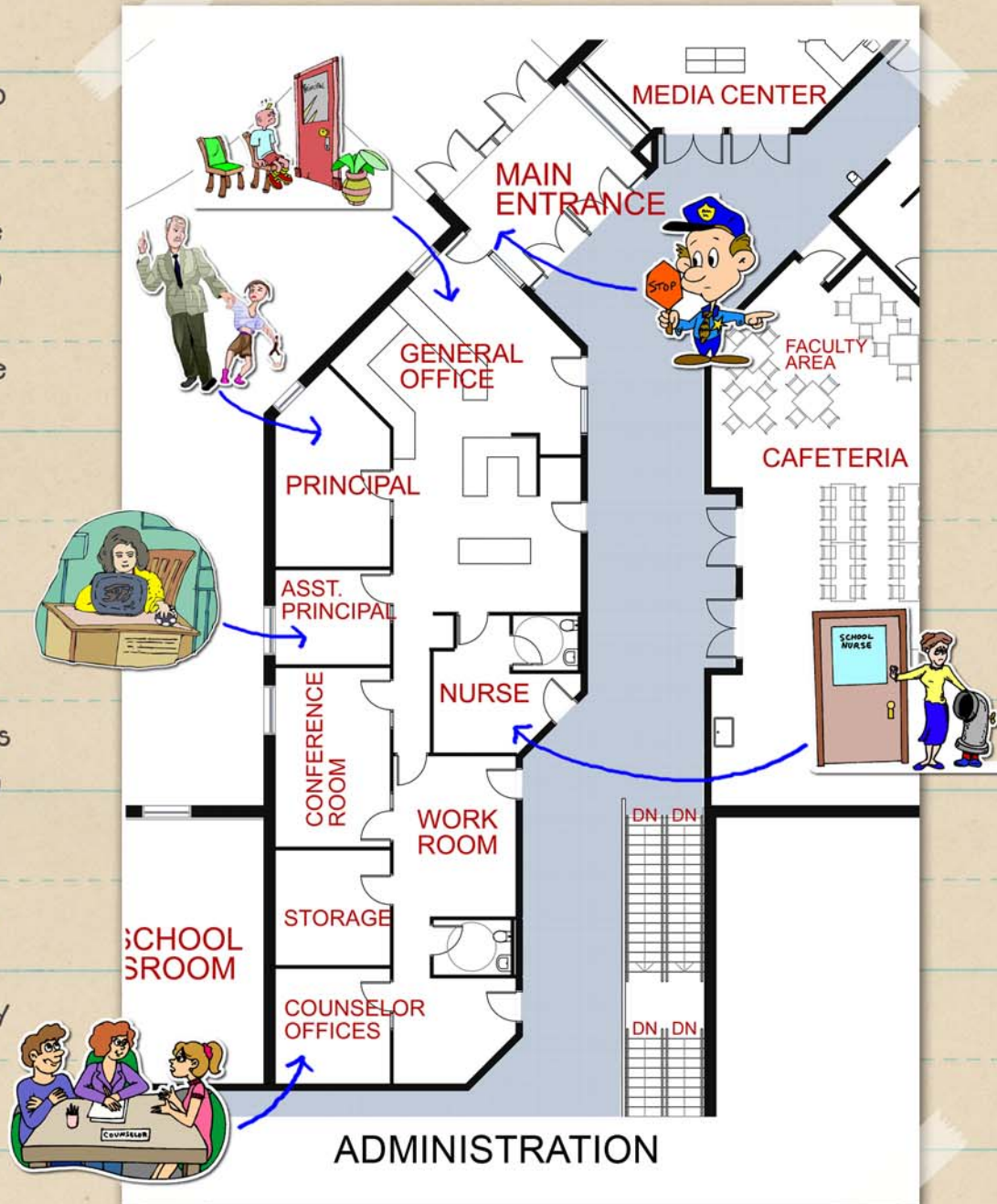
WEST ELEVATION

My little sister will be able to come to school with me because the new school will have two pre-school classrooms with their own playground and two kindergarten classrooms. The new building will allow for wheelchairs to go anywhere and will have two classrooms for my playmates that have special needs. I think it's good that part of the building is close to the media center and cafeteria since little kids will not have to travel as far to use these spaces.

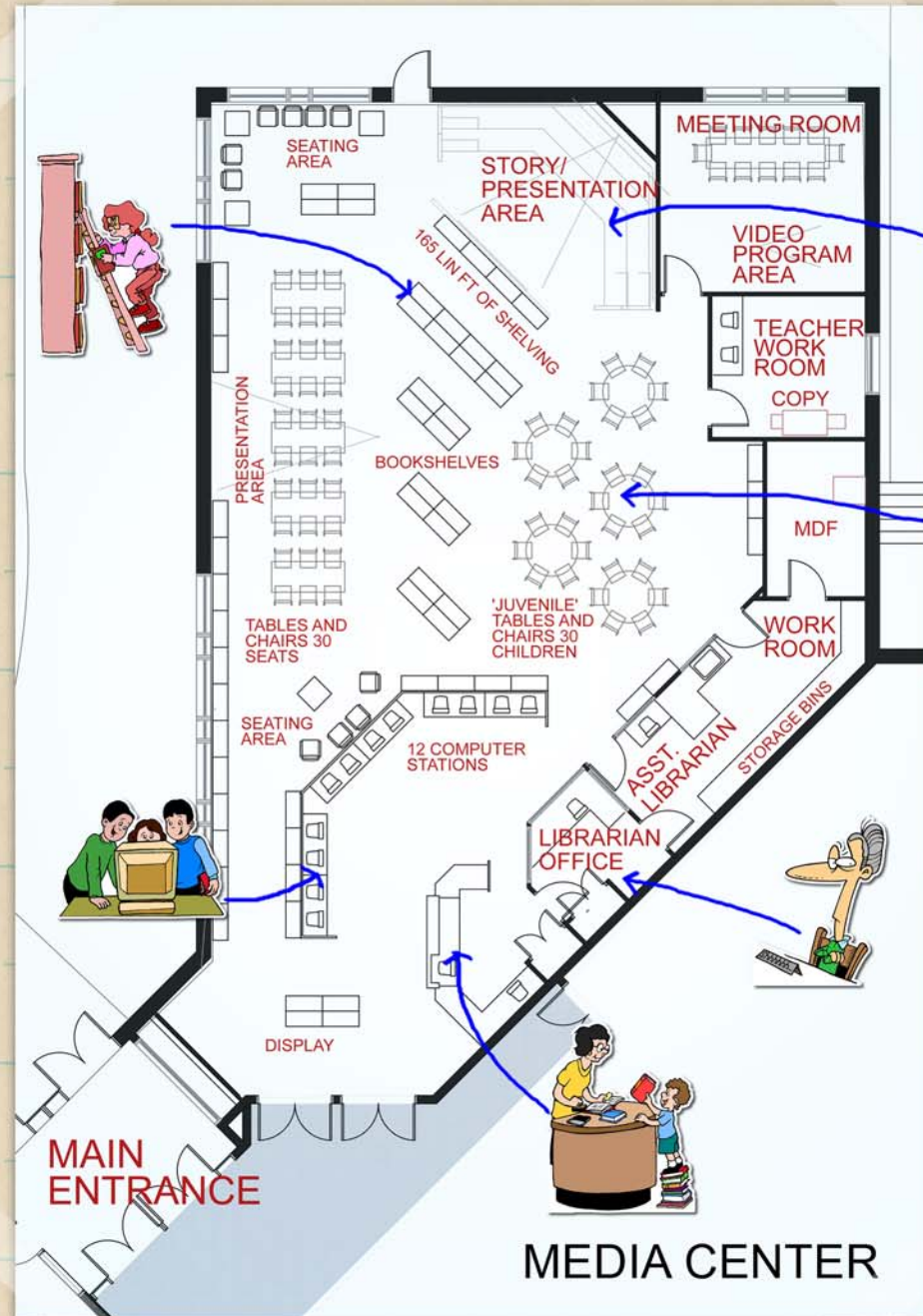


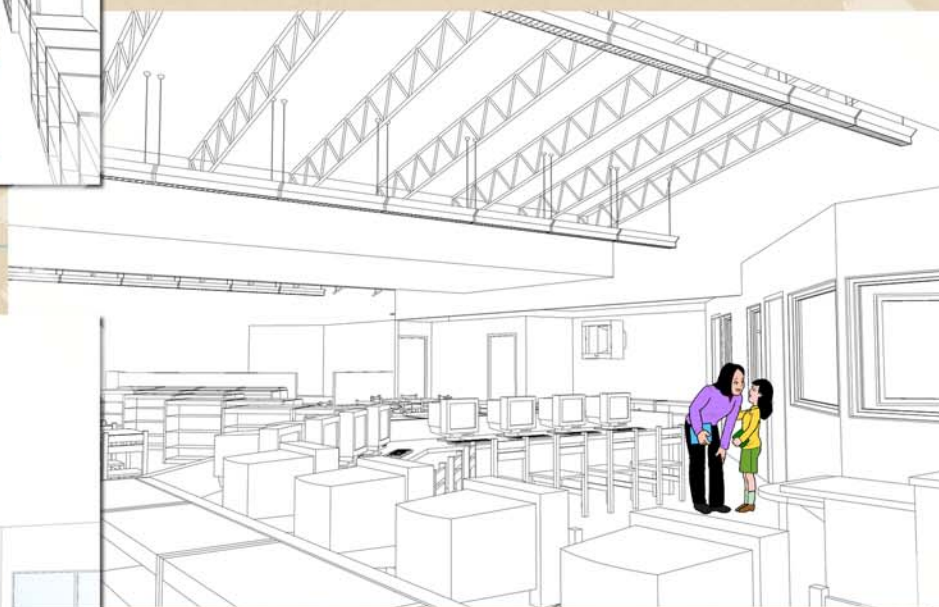
The first floor plan is designed to provide a security entrance so that once school starts all the doors are locked from the outside and visitors have to come through the general office. The media center and cafeteria and gym are used a lot at night and are close to the entrance.

The administration area will have offices for our principal and an assistant principal. The teachers and staff will also have a conference room. The counselor's office even has a waiting area in case they are already meeting with someone. I don't go to the nurses office very much but it is good that we have one and that it's close to the office in case my mom or dad need to pick me up because I don't feel good.



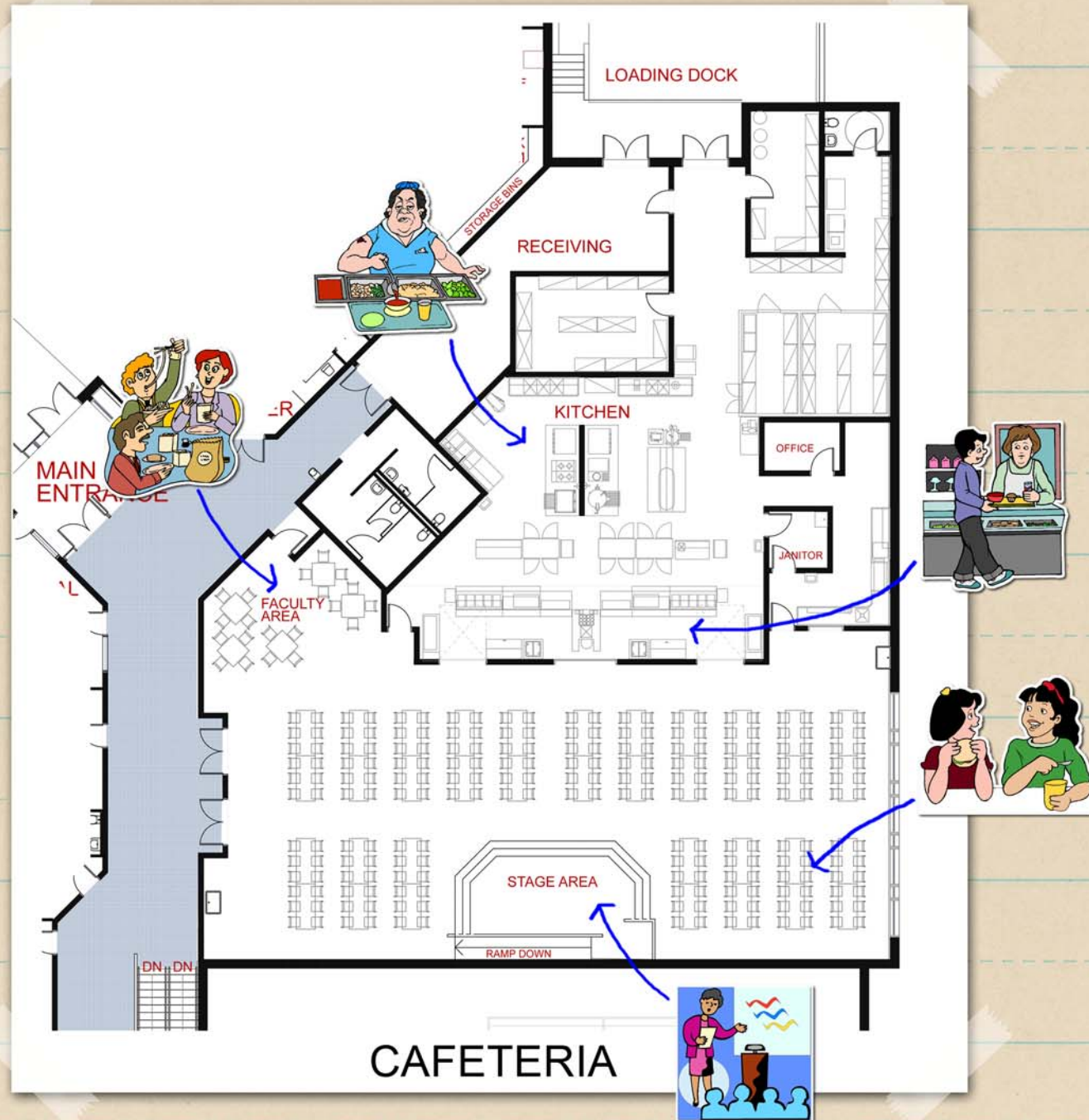
The media center (my mom and dad call it a library) will be much bigger than the media center at my old school. It will have 12 computers to look up information. Some of the tables and chairs will be smaller for the little kids. There's an area for the librarian to teach using a computer projector and a story area where the little kids to sit on steps. My teacher has a place to get projects and lessons ready. My new school will have a lot of equipment and computers. Information can even be sent back to the classrooms from the media center. We're going to have a video program area so news and information can be shared with the whole school. Oh, I almost forgot - the media center will also have a lot of books and some seating areas where I can sit and read.

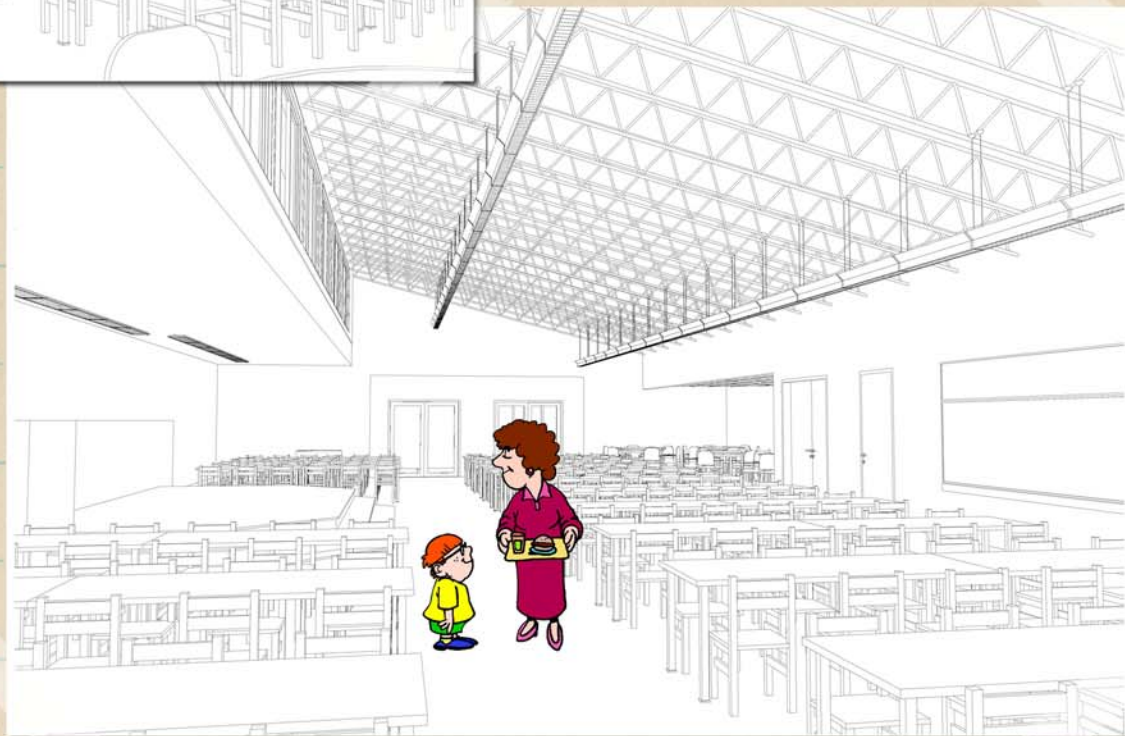
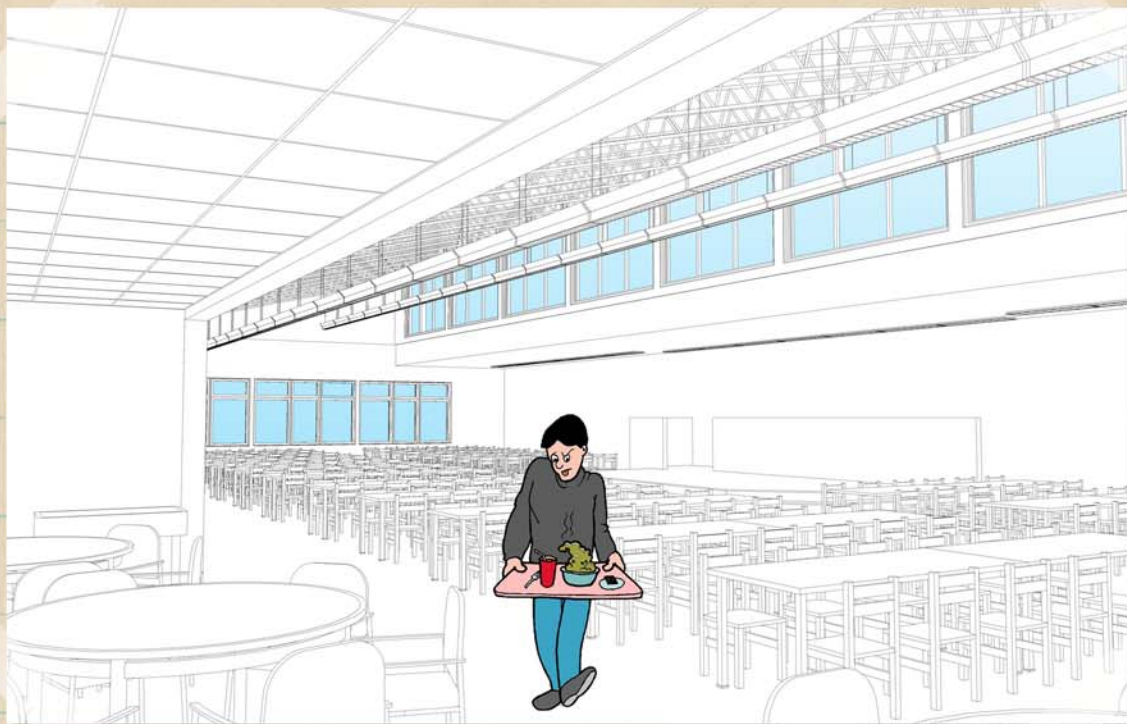




Pictures of the Media Center

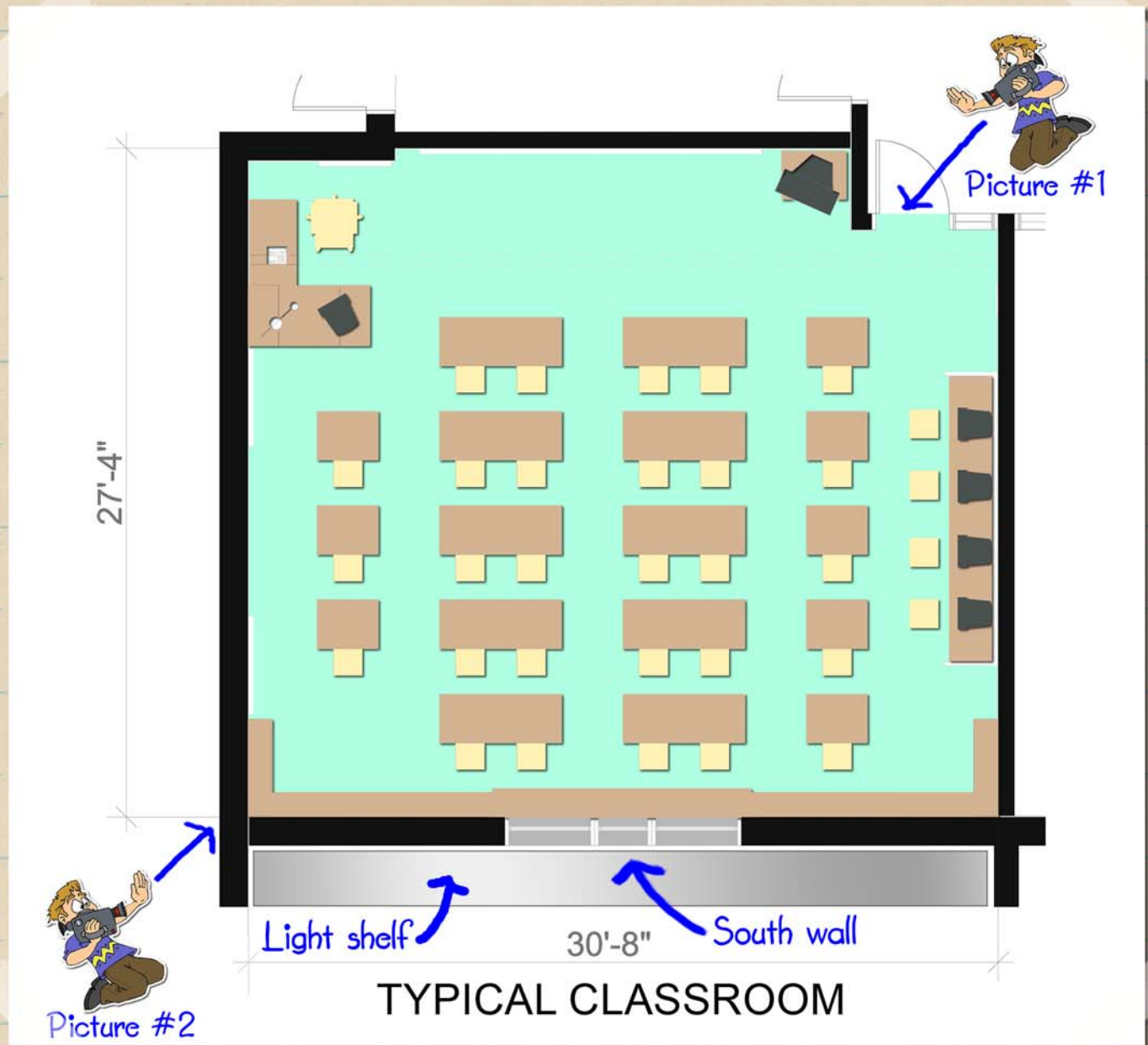
The cafeteria will have a complete kitchen for making fresh food. There will be wash areas to clean hands before and after eating. The cafeteria is used for a lot more than just eating lunch. A raised stage area is located in the middle for meetings and school presentations. I guess most school parent meetings will use the cafeteria but I think the community might want to have meetings there also.





Pictures of the Cafeteria

By orientating the building with glass on the south and north and minimizing the glass on the east and west, the heat gain can be reduced in the summer when the days are longer and the sun is high in the sky. The heat gain can be increased in the winter when the sun is lower in the sky. The light shelves on the outside will bounce and spread the light to the classroom ceilings without a lot of heat gain and the overhangs will shade the hot summer sun. The outside masonry walls are full of insulation and the mass (because of the heavy clay and cement) is a great sound barrier.





Picture #1

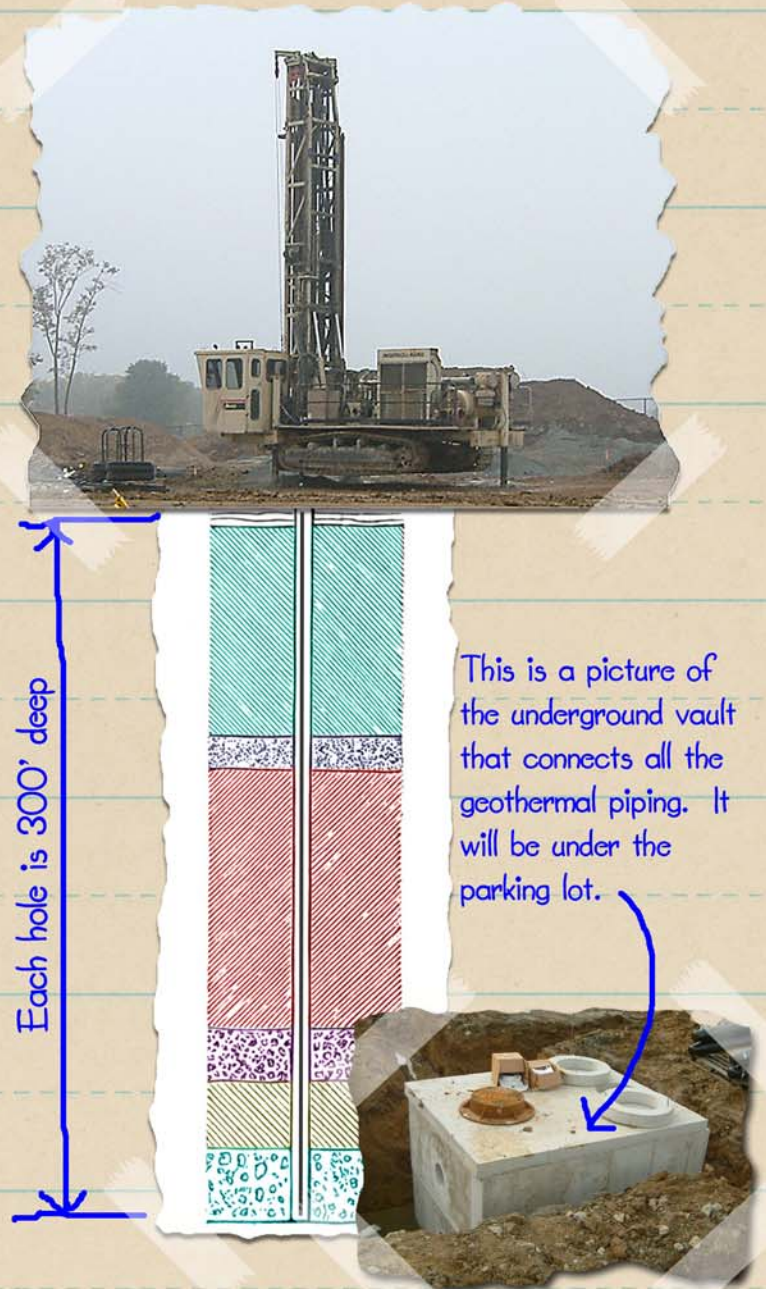
Picture #2



Science

My new school will be heated and cooled by a Geothermal Heating and Cooling System. 144 holes were drilled into the ground. They are about 300 feet deep. The holes have piping in them and they are all connected together and filled with antifreeze. In the winter the antifreeze is circulated through the piping in the earth and absorbs the stored heat from the ground and carries it indoors. Mechanical units in the building will compress the heat to a higher temperature and distribute it throughout the building. In the summer, the system reverses. Heat is pulled from the building, carried back into the cooler earth and deposited..

The system was designed by CMTA Engineering Consultants. They said it was three to four times more efficient than most other systems. The neat thing is that geothermal systems work with nature, not against it. The system does not burn any fossil fuel to generate heat. It simply transfers heat from the earth into the building. If a leak should ever happen in the underground piping, the antifreeze will not harm the environment.



I called CMTA Engineering Consultants to talk to them about the heating and cooling system for my new school. Mark Seibert told me the heating and air conditioning systems installed at my new school will be very energy efficient and will allow the teachers to have total control of room temperatures. My school will be heated and cooled utilizing a geothermal heat pump system. He told me geothermal heat pump systems are one of the most efficient types of heating and cooling systems to operate. He also said geothermal systems utilize the earth's underground temperatures to heat and cool the school. Additionally, with this system, any classroom can have heating or cooling at any time of the year.

To provide a quiet, noise free learning space, the heat pumps are located in various mechanical rooms. Placing these units in the mechanical rooms will eliminate the noise from the heat pump to the classroom, making it easier for my classmates and me to hear the teacher.

All of the building's heat pumps are controlled by computers through the Internet. The facilities staff, who will have a password and a computer connected to the Internet, can remotely change the temperature of any room. This type of system allows for continuous observations of the heat pumps. For example, if classroom temperatures are higher than expected, the computer controlling the heat pumps can call the school's maintenance person and tell him there is a problem.

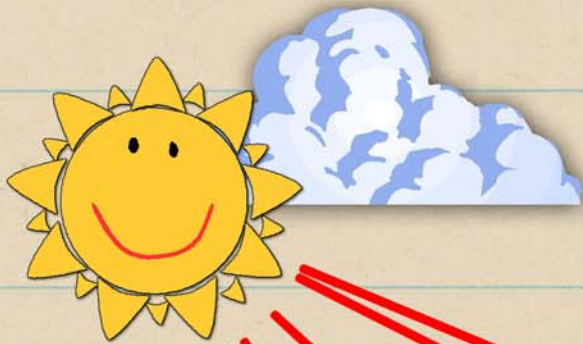


In winter, fluid passing through this vertical, closed loop system is warmed by the heat of the earth; this heat is then transferred to the building (select image to enlarge).

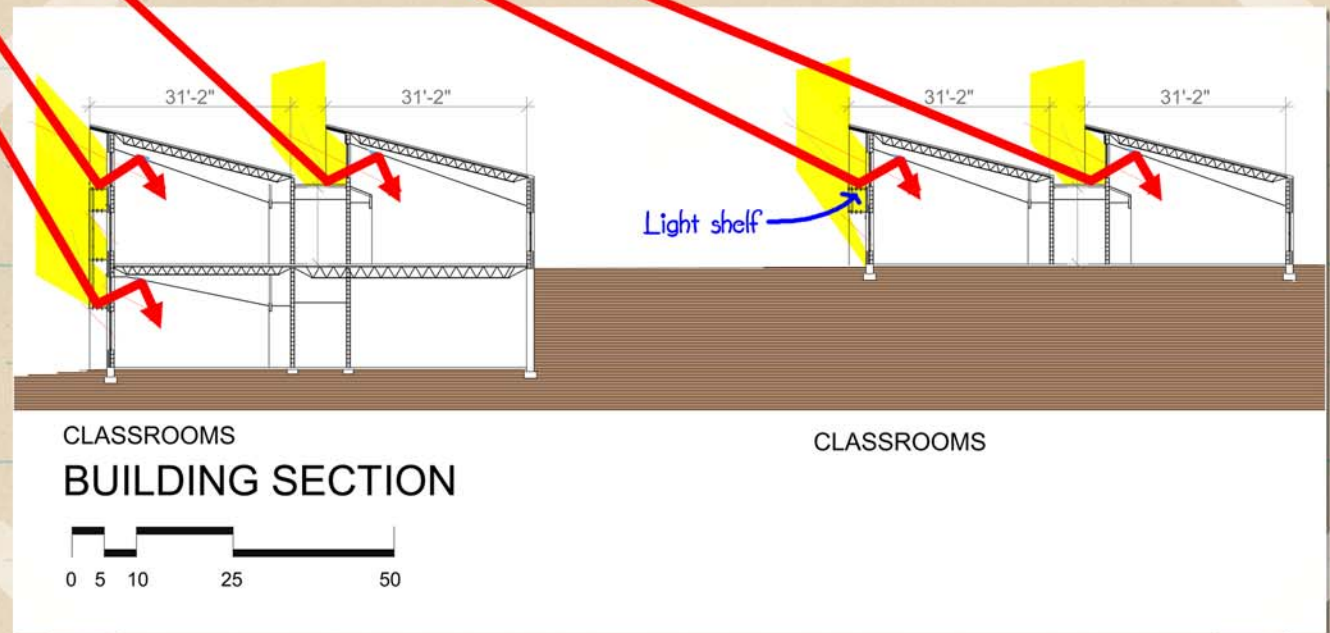


In summer, the fluid removes heat from the building and transfers it to the relatively cooler ground in order to cool the building (select image to enlarge).

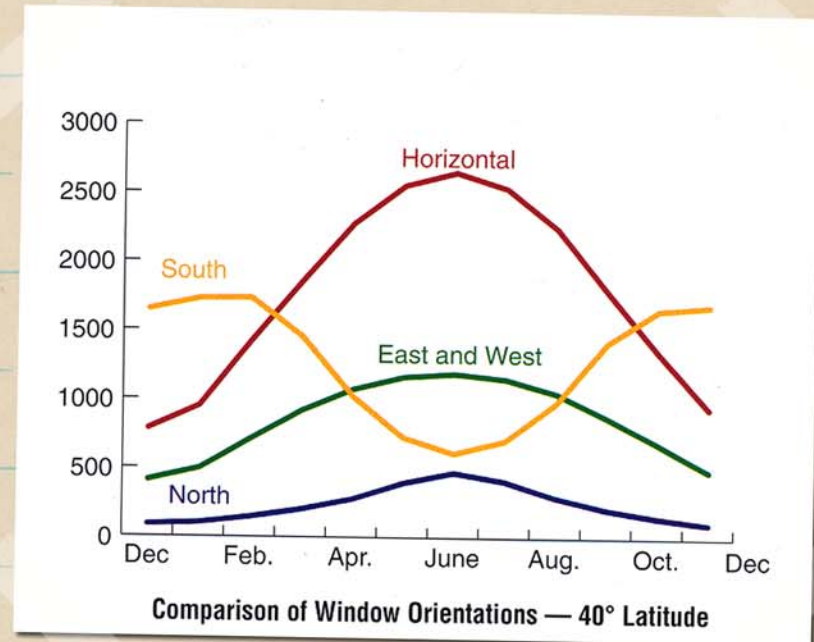
I found this example of how a geothermal heat pump works at the U.S. Department of Energy - Energy Efficiency and Renewable Energy website. The web site address is "www.eere.energy.gov/consumerinfo/heatcool/hc_space_geothermal_types.html"



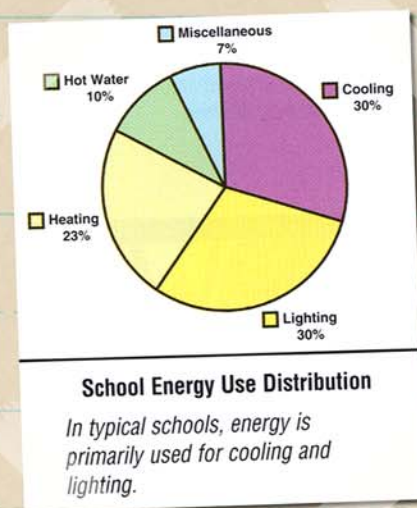
The architect gave me this drawing that shows how the light shelf restricts the amount of sun light entering the lower windows of my classroom. The light shelf also bounces sun light up to the ceiling and back down to my desk. It's better for my eyes that way. I can't wait to see my new classroom.



The architect also told me the amount of solar radiation (heat gain) striking windows varies depending on the time of year and the direction the windows face. Windows facing east, west, and north let in more solar radiation in the summer than they do any other time of year. So do skylights. Windows facing south let in less solar radiation in the summer than they do any other time of year because the sun is so high in the sky. Windows facing south let in the highest amount of solar radiation in the winter because the sun is so low in the sky. My school has most of its windows facing south and fewer windows facing east, west and north. By controlling solar radiation on the south elevation, my school will take advantage of the sun's light energy year around. When natural light is properly shaded, it doesn't lead to excessive heat gain. The windows at my new school will have three panes of special glass and built-in louvers to help minimize heat gain and glare in warmer months, and heat loss in colder months.



I found both of these charts in a book called "Energy Design Guidelines for High Performance Schools." It was written by the U.S. Department of Energy.



I hear my dad talk about the gas and electric bill. Gas and electricity costs a lot every month and it keeps going up. I looked on the Internet and read that the costs of energy over the life of a school building will far exceed the initial cost of the building.

I also learned that electric lights produce more waste heat energy than daylighting. Unwanted heat must be removed in the winter as well as the summer by ventilation and air conditioning.

Math



A+

Very Good!
Next time
remember to
show all of your
calculations

PROBLEM NO. 1

If the first floor of the new school is 47,984 square feet and the lower level is 30,865 square feet, what is the total square footage of the building?

$$\begin{array}{r} 47,984 \\ + 30,865 \\ \hline 78,849 \end{array}$$

78,849 sf

PROBLEM NO. 2

If the Caywood School site has 291,488 square feet and if there are 43,560 square feet to an Acre, how many Acres are there on the Caywood site?

$$43,560 \overline{) 291,488} \quad 6.69$$

6.69 acres

PROBLEM NO. 3

If the site work cost \$1,409,363, and the geothermal loop field cost \$430,400 and the building cost \$10,634,000 what is the total construction cost of the new school?

$$\begin{array}{r} 1,409,363 \\ 430,400 \\ + 10,634,000 \\ \hline 12,473,763 \end{array}$$

\$12,473,763

PROBLEM NO. 4

After you have calculated the total construction cost for the building in Problem No. 3, what is the cost per square foot of the new building? (HINT: You will need to use your answer from Problem No. 1 to determine this answer)

$$78,849 \overline{) 12,473,763} \quad 158.19$$

\$158.19/sf

This is a chart the architect gave me. It compares the square footages recommended by the Kentucky Department of Education to those of my new school. I am not really sure what it means but my mom and dad understood it. They said my new school will be much bigger and much better than my old school.

CAYWOOD ELEMENTARY SCHOOL SQUARE FOOTAGES

	KDE STANDARDS			REVISED SCHEMATIC		4/22/2004
	QUANTITY	AREA	TOTAL	QUANTITY	AREA	TOTAL
STANDARD CLASSROOMS	24	800 SF	19,200 SF	22	818	17,996 SF
SCIENCE CLASSROOM				1	1,050	1,050 SF
RESOURCE ROOMS	6	400 SF	2,400 SF	6	varies	2,426 SF
SPECIAL EDUCATION CLASSROOM	1	825 SF	825 SF	2	821	1,598 SF
KINDERGARTEN CLASSROOM				2	803	1,606 SF
PRESCHOOL CLASSROOMS	2	825 SF	1,650 SF	2	828	1,656 SF
ART CLASSROOM	1	800 SF	800 SF	1	867	867 SF
MUSIC CLASSROOM	1	800 SF	800 SF	1	910	910 SF
COMPUTER CLASSROOM	1	800 SF	800 SF	1	1045	1045 SF
SBDM Instructional Programs		3,000	3,000 SF			
TOTAL CLASSROOM			29,475 SF			29,154 SF
MEDIA CENTER			3,650 SF			3,785 SF
KITCHEN			3,000 SF			2,892 SF
CAFETERIA			4,600 SF			4,441 SF
PHYSICAL EDUCATION			5,500 SF			8,635 SF
ADMINISTRATIVE AREA			1,870 SF			2,221 SF
TEACHER LOUNGE						890 SF
FAMILY RESOURCE AREA			300 SF			553 SF
CUSTODIAL RECEIVING/STORAGE			250 SF			581 SF
CLOSETS				2		202 SF
MECHANICAL UNFINISHED AREA						4,194 SF
NET BUILDING AREA			48,645 SF			57,548 SF
EFFICIENCY FACTOR-74%			65,736.49 SF			77,768 SF
ACTUAL GROSS SF				BUILDING AS BID AUG.04 72.99% Efficiency factor		78,849 SF

Recess



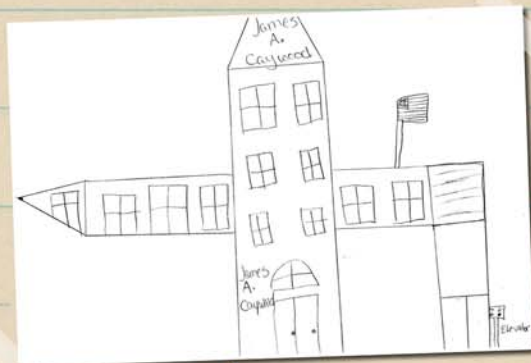
My new school will reuse
the playground structure
from my old school.

My friends and I like to
play on it.

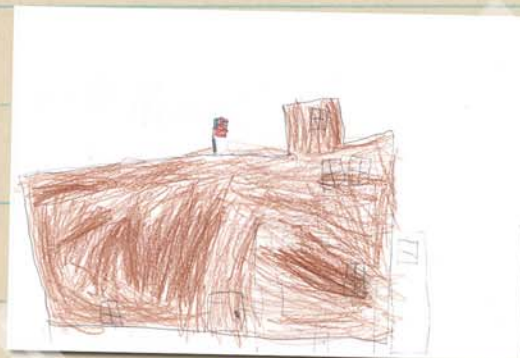


This is me!

One day when it was raining, we could not go out to play. Instead, we stayed inside and pretended we were architects and drew pictures of our new school. These are just some of the pictures my classmates drew.



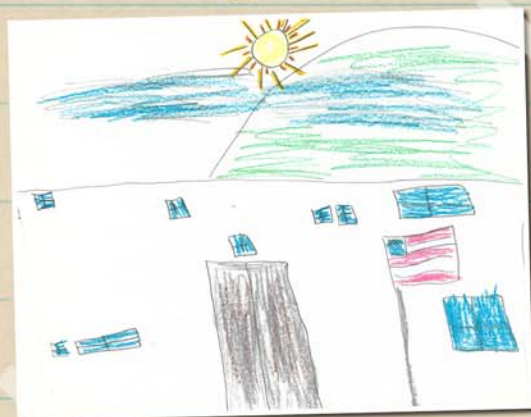
Laura



Sloan



Luke



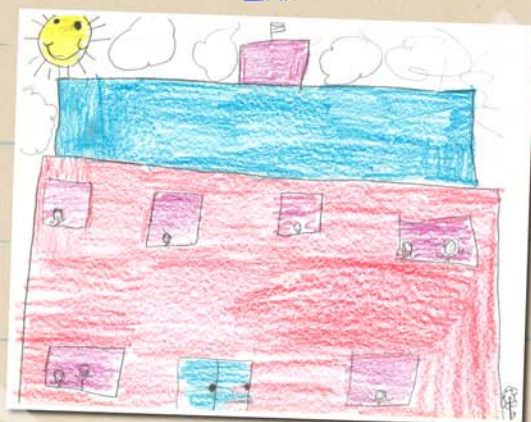
Erin



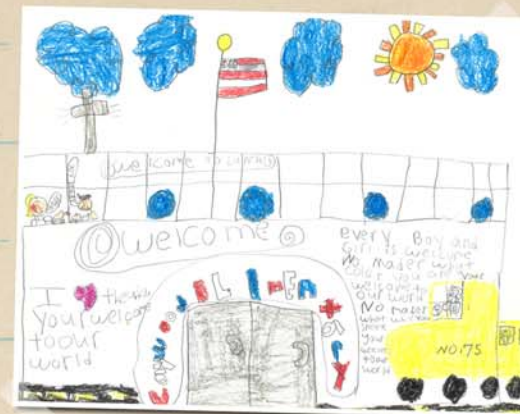
Ruby



Emma



Katie



Casey



Davian

Thank yous

While writing my report I found out that it takes a lot of people to help get a new school built. These are pictures of just a few of the people who made the new James A. Caywood Elementary School possible. Many of them helped me with this report. Thank you to everyone!



Dr. Susan K. Cook
Superintendent



Mike Martin - Vice Pres. Carl Wicklund - President
Tamara Miano, Esq. Janice Hacker Karen Collins
2004-2005 Kenton County Board of Education Members



Tim Hanner
Deputy Superintendent



Rob Haney
Director of Support Operations
KCS Project Manager for the Caywood School



Robert Lape
Facilities Manager
KCS "Cheerleader" for Green Architecture



Jim Kaiser, Andrew Piaskowy, Mark Perry, Ralph Cooper
Piaskowy + Cooper^{PSC}
Architects + Planners



Dwight Raleigh
Caywood Elementary School
Principal



Tony Hans ("Rabbit Ears")
Phil Yancey, Jeremy Lewis, Mark Seibert, Tom Wessling
Lenny Hendrix
CMTA Engineering Consultants
MEP Engineers



Harry Sladen
Facility Commissioning Group



Justin Verst, Greg Larison, James Viox
Viox & Viox, Inc. • Civil Engineers



Smith/Roberts Assoc. • Structural Engineers
Artist Conception • Picture Not Available



Ben Lotter, Scott Davis, & Brian Campbell
Messer Construction



DESIGN OF THE
JAMES A. CAYWOOD SCHOOL
AND
BROCHURE DESIGN
BY



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